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VEGETABLE GARDENING

FOR HOME AND DEFENSE

BY

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Gardens in Defense

The home vegetable garden, always a desirable and economical source of fresh, wholesome food, steps into a new and highly important National Defense role. Our Agricultural Defense Program calls for a substantial increase in the food production of the nation, to assure a higher nutrition standard at home and to meet the needs of the democracies abroad. By planting a home garden and canning, preserving, freezing or storing a portion of the produce you will not only help to attain this goal but will materially reduce your cost of living. More home-grown food will mean that a higher percentage of commercial canned goods production can go into national defense uses. *Every farm in Idaho should have a family vegetable garden.* Because successful vegetable gardening involves considerable planning in advance of actual planting, this publication assembled reliable information which will be helpful to farmers in every section of the state.

Table of Contents

Introduction 3
Location of the Garden 3
Size of the Garden 5
Planning the Garden 5
- Plan Suggestions 5
- Calculating the Dates of Planting 8

Varieties 8
Preparing the Seedbed 13
- Plowing or Spading 13
- Harrowing and Raking 13

Cultivation 13
Irrigation 13
Plant Growing 14
- Hardening 14

Storage of Vegetables 14
Cultural Hints for Some Common Home Garden Crops 16
- Asparagus 16
- Green and Wax Beans 16
- Beets 16
- Broccoli 17
- Brussels Sprouts 17
- Cabbage 17
- Carrots 18
- Cauliflower 18
- Celery 18
- Chard (Swiss) 19
- Chinese Cabbage 19
- Cucumber 19
- Eggplant 19
- Endive 20
- Horse-radish 20
- Lettuce 20
- Muskmelon 21
- Onion 21
- Parsnip 21
- Peas 21
- Peppers 22
- Potato 22
- Radish 22
- Rhubarb 22
- Salsify 23
- Spinach 23
- Squash and Pumpkin 23
- Sweet Corn 23
- Tomato 24
- Turnip 24
- Watermelon 24

Vegetable Gardening for Home and Defense

by

CARL F. DIETZ, *Assistant Horticulturist*[1]

Introduction

THE value of the products harvested from an average garden will greatly exceed the value of crops harvested from a similar acreage elsewhere on the farm; therefore, the home garden should be the best cared for plot. Furthermore, the value of the garden to the health and happiness of the family is worth as much or more than the actual cash value.

Vegetables are an important source of minerals, vitamins, and roughage, all of which are important and essential to the normal growth and development of children and to the health of adults. Fresh and properly prepared vegetables are extremely nutritious and usually less expensive than most other food products. Table 1 shows the value of vegetables as a source of vitamins and minerals.

Many people believe that it is cheaper to buy vegetables than to raise them; however, when it is realized that a family of five requires more than 3,000 pounds of vegetables per year to satisfy their dietary needs, it can be estimated that this quantity would be quite expensive to purchase. It is an observed fact that many people, if they do not grow their own vegetables, will not have them on the table.

Many vegetables lose their flavor and quality if they are not used within a few hours after being harvested, but vegetables from the home garden may always be harvested when in their best condition and prepared while fresh. Furthermore, the home-produced vegetables are not subjected to dehydration, bruising, and market exposure as are those purchased from the stores.

Location of the Garden

In most cases, the location of the garden is already established; however, in many instances, the location is sadly improper. The first essential is that the plot be near the house. The reasons for this recommendation are: (1) Most of the work in the garden is done in spare time, so, for convenience, it should be near the house; and (2) Most of the harvesting and gathering of vegetables is done by women, and the natural tendency is to neglect the garden if it is not close by.

In most parts of Idaho irrigation is required to produce high quality vegetables and since work in the garden is done in spare time, irrigation water must be readily available. Spots that are hard to water are to be avoided.

[1] Located at Parma, Idaho

Table 1.—Vitamin and mineral content of some common vegetables

Vegetables	Minerals			Vitamins**			
	Calcium	Phosphorus	Iron	A	Thiamin (B_1)	Ascorbic Acid (C)	Riboflavin (G)
Asparagus	*	*	*	X	X	X	XX
Beans, (dry)	XX	XXX	XXX	*	XXX	*	X
Beans, (green)	XX	*	XX	X	*	X	XX
Beet greens	*	*	XXX	XXX	*	X	XXX
Beets	*	*	*	*	*	*	X
Broccoli	XXX	XX	XXX	XXX	*	XXV	XXX
Brussels Sprouts	*	XX	XX	X	X	XX	X
Cabbage	XX	*	XX	*	X	XX	X
Carrots	XX	*	*	XX	X	*	X
Cauliflower	*	*	*	*	X	XX	XX
Celery	XX	*	*	*	*	*	*
Chard	XXX	*	XXX	XXX	*	X	X
Chinese Cabbage	XXX	*	*	XXX	*	*	*
Collards	XXX	XX	XX	XX	XX	XX	XXX
Corn, (sweet)	*	XX	*	*	X	X	X
Cucumbers	*	*	*	*	*	X	XX
Eggplant	*	*	*	*	*	*	*
Endive	XX	*	XX	XXX	*	X	XX
Kale	XXX	*	XXX	XXX	X	XX	XXX
Kohlrabi	XX	XX	*	*	*	XX	*
Leek	XX	*	*	*	*	X	*
Lettuce	XX	*	XX	XX	X	X	XX
Lima Beans	*	XXX	XXX	X	XX	X	XXX
Muskmelon	*	*	*	X	*	X	X
Mustard Greens	XXX	*	XXX	XXX	X	XXX	XXX
Onions	*	*	*	*	*	X	*
Parsnip	XX	XX	*	*	X	X	*
Peas	*	XX	XX	X	XXX	XXX	XX
Pepper	*	*	*	XX	*	*	*
Potato	*	*	*	*	X	X	X
Pumpkin	*	*	*	XX	*	*	*
Radish	*	*	*	*	*	X	*
Rhubarb	*	*	*	*	*	X	*
Rutabaga	XX	*	*	*	X	X	X
Salsify	XX	*	XX	*	*	*	*
Spinach	*	*	XXX	XXX	X	XX	XXX
Squash	*	*	*	X	*	*	X
Sweet Potato	*	*	*	X	X	X	X
Tomato	*	*	*	X	X	X	X
Turnip Greens	XXX	*	XXX	XXX	X	XX	XXX
Turnips	XX	*	*	*	*	X	X
Watermelon	*	*	*	*	*	*	*

* None or very little present; X Fair source; XX Good Source; XXX excellent source.

** Vitamin values based primarily upon the text, *Chemistry of Food and Nutrition*, Henry C. Sherman, The MacMillan Co., 1941. Mineral values based primarily upon *Food and Life, Yearbook of Agriculture*. U.S.D.A., 1939.

In northern Idaho and in high altitude regions, the garden should be on a southern or southeastern slope since the soil on these exposures warms up more readily in the spring. In these areas it is also preferable to have the garden on the lighter, sandier soils which dry out more readily, thus allowing them to warm quickly in the spring. Frost pockets should be avoided.

In some parts of the State there are strong prevailing winds which are especially severe during the growing season, and the gardens in these areas should be protected by windbreaks. However, proximity of the garden to large trees should be avoided since the roots of the trees rob the growing vegetables of both soil nutrients and soil moisture.

Size of the Garden

The size of the garden usually is determined by the location and the amount of land available; however, several factors concerning size should be considered when choosing the plot:

(1) The number of individuals to be fed from the garden affects its size. It should be large enough to produce sufficient quantities of vegetables for freezing, canning, and storing to meet the family's dietary needs during the winter and spring, plus the vegetables that are used fresh during the growing season.

(2) The size of the garden is affected by the number of different types of vegetables to be grown. There should be at least 20 to 25 different kinds of vegetables in the garden, and large gardens could easily accommodate 40 to 45 different types. Very few people realize the variety of vegetables that can be grown in most sections of the State. Even in the highest altitudes, 15 to 20 different types can be grown successfully.

(3) If hand cultivation is to be practiced, the size of the garden can be much smaller than if tractor or team cultivation is to be practiced. Much closer spacings than are shown in Table 2 can be used with hand cultivation and greater planting distances can be used with tractor or team cultivation.

Planning the Garden

There is no one garden plan that will suit more than a very few conditions, since the preferences and tastes of different families vary considerably. The garden plan should be made on paper previous to actual planting. It should show the location and amount of land devoted to each crop used. It should be referred to constantly throughout the planting season to prevent overplanting or underplanting any one crop.

Plan Suggestions

To facilitate the making of a plan, Table 2 has been prepared, and the following suggestions should be kept in mind:

(1) Start at one side of the garden and plant across to the other side. Perennials should be planted on the side of the garden,

Table 2.—Data for use in planning the garden

Vegetable	Classification by resistance to frost	Produce harvested from a 100 foot row	Seed required for a 100 foot row	Planting distance		Depth to plant seeds
				Between rows*	Within rows	
Asparagus (plants)	Hardy perennial	30-40 bunches	50-75 plants	35 feet	18-24 in.	
Beans Bush	Tender	50-75 pounds	1 pound	16-28 in.	3-4 in.	1-2 in.
Beans Pole	Tender	75-100 pounds	½ pound	2½-3½ feet	12-15 in.	1-2 in.
Beets	Half hardy	100-125 pounds	1 ounce	16-28 in.	2-3 in.	1 inch
Broccoli (plants or seeds)	Hardy	50-75 pounds	¼ ounce 50-80 plants	2½-3½ feet	15-24 in.	½ inch
Brussels Sprouts (plants or seeds)	Hardy	25-50 pounds	¼ ounce 50-80 plants	2½-3½ feet	15-24 in.	½ inch
Cabbage Early (plants or seeds)	Hardy	100 pounds	¼ ounce 50-80 plants	2½-3½ feet	15-24 in.	½ inch
Cabbage Late (plants or seeds)	Hardy	150 pounds	¼ ounce 50-80 plants	2½-3½ feet	15-24 in.	½ inch
Carrot	Hardy	100-125 pounds	½ ounce	16-28 in.	2-4 in.	½ inch
Cauliflower (plants)	Half Hardy	75 pounds	¼ ounce 50-80 plants	2½-3½ feet	15-24 in.	½ inch
Celery (plants)	Half Hardy	100-150 bunches	¼ ounce 200-300 plants	2½-3½ feet	4-8 in.	
Chard	Half Hardy	70-80 pounds	2 ounces	16-28 in.	6-8 in.	1 inch
Chinese cabbage	Half Hardy	100 pounds	¼ ounce	16-28 in.	12-18 in.	½ inch
Collards	Half Hardy	50-60 pounds	¼ ounce	16-28 in.	4-8 in.	½ inch
Corn (sweet)	Tender	100-125 ears	¼ pound	2½-4 feet	12-18 in.	1 inch
Cucumber	Very tender	80 lbs. pickles plus 100 fruits	½ ounce	4-6 feet	2-4 feet	1 inch
Eggplant (plants)	Very tender	75-100 fruits	½ ounce 50 plants	2½-3½ feet	24 in.	
Endive	Half hardy	20-40 pounds	1 ounce	16-28 in.	8-12 in.	½ inch
Horseradish (plants)	Hardy perennial	25-30 pounds	60-80 roots	3-4 feet	15-20 in.	

* Where a combination of two distances is given, such as 16 and 28 inches, the crop is grown on beds. Rows are 16 inches apart on the

Table 2. (Continue

Kale	Hardy	50-75 pounds	¼ ounce	16-28 in.	8-12 in.	½ inch
Kohlrabi	Hardy	50-75 pounds	¼ ounce	16-28 in.	4-8 in.	½ inch
Leek	Hardy	50-60 bunches	½ ounce	16-28 in.	4 in.	½ inch
Lettuce — Leaf	Hardy	30-50 pounds	½ ounce	16-28 in.	4-8 in.	½ inch
Lettuce — Head (plants or seeds)	Hardy	75 heads 70-90 pounds	½ ounce	16-28 in.	14-16 in.	½ inch
Lima Beans	Very tender	40-60 pounds	1½ pounds	16-28 in.	4-6 in.	1-2 in.
Melon, musk	Very tender	100 fruits	½ ounce	4-8 feet	3-5 feet	1 inch
Melon, water	Tender	50-75 fruits	1 ounce	5-10 feet	3-5 feet	1 inch
Mustard greens	Half hardy	40-60 pounds	¼ ounce	16-28 in.	4-8 in.	¼ inch
Onion — Seed	Hardy	50-75 pounds	1 ounce	14-22 in.	2-3 in.	½ inch
Onion — Sets	Hardy	50-75 pounds	2 quarts	14-22 in.	2-3 in.	1-2 in.
Onion — Plants	Half hardy	50-75 pounds	250-400 plants	14-22 in.	3-5 in.	
Parsley	Hardy perennial	25-30 pounds	½ ounce	16-18 in.	6-10 in.	
Parsnip	Half hardy	100 pounds	½ ounce	16-28 in.	3-4 in.	½ inch
Peas	Hardy	30-50 pounds	1 pound	16-28 in.	3-4 in.	1-2 in.
Pepper (plants)	Very tender	30-40 pounds	60-90 plants	2½ feet	14-18 in.	½ in.
Potato	Half hardy	50-100 pounds	8 pounds	2½-3 feet	10-16 in.	2-4 in.
Pumpkin	Very tender	100 pounds	½ ounce	6-10 feet	60-80 in.	1 inch
Radish	Hardy	75-100 bunches	1 ounce	16-28 in.	Drill	½ inch
Rhubarb (plants)	Hardy perennial	250 stalks	34 plants	3-5 feet	3 feet	3-4 in.
Rutabaga	Hardy	100-150 pounds	½ ounce	20-28 in.	6-10 in.	¼ inch
Salsify	Half hardy	30-40 bunches	1 ounce	16-28 in.	3-4 in.	½ inch
Spinach	Hardy	50-75 pounds	1 ounce	16-28 in.	4-6 in.	1 inch
Squash — Summer	Very tender	75-100 pounds	½ ounce	5-10 feet	4-6 feet	1 inch
Squash — Winter	Very tender	100-125 pounds	½ ounce	5-10 feet	4-6 feet	1 inch
Tomato (plants or seeds)	Tender	125-150 pounds	⅛ ounce 20-40 plants	3-6 feet	3-4 feet	½ inch
Turnip	Hardy	75-100 pounds	½ ounce	16-28 in.	3-4 in.	¼ inch

followed by hardy crops, then half hardy, tender, and very tender crops, depending upon their planting dates.

(2) Plant large quantities of those vegetables most desired by the family and less of those that are not commonly used.

(3) Use long rows in preference to short ones to simplify irrigation and cultivation, and run the rows in the direction that will give the best irrigation and drainage.

(4) Make provision for succession cropping by planting all hardy, short season crops such as lettuce, peas, radishes, early potatoes, carrots, and beets together in order that when these crops are harvested they can be followed by short season tender crops or fall season hardy crops.

(5) Make successive plantings of crops such as radishes, lettuce, beans, and sweet corn in order to have fresh produce over a longer period of time.

(6) Carefully consider the varieties and maturity dates of crops for canning in order that the canning season may be spread out through the summer.

Calculating the Dates of Planting

A summary of the average dates of the last killing frosts in the spring and first killing frosts in the fall is given in Table 3 furnished by the United States Weather Bureau station at Boise. The vegetables are classified in Table 2 as to their resistance to spring frosts and from this classification planting dates can be figured as follows:

(1) *Hardy*—In valley regions, the seeds of these crops may be planted from 6 to 8 weeks before the last killing frost in the spring.

(2) *Half Hardy*—These crops may be planted 2 to 4 weeks before the last killing frost in valley regions, and about a week to 2 weeks before the last killing frost in high altitudes.

(3) *Tender*—These should not be planted before the last killing frost, preferably 10 days later.

(4) *Very Tender*—In some of the higher altitudes these crops cannot be grown. They should not be planted until the ground warms up in the summer, usually about two and a half to three weeks after the last killing frost. Long periods of cool weather without frost may kill some of these crops.

Further specifications of planting dates are found for various special crops in the discussion of cultural practices.

Varieties

The varieties of different vegetables to be used in the garden depend primarily upon the personal preferences of the family and upon the length of the growing season for the particular region. The personal preferences of the family many times are based upon a beautifully colored picture in a seed catalog and frequently the variety does not conform to the pictures. If the gardeners are not familiar with a particular variety, they should grow it on a small scale in their gardens to determine its performance.

Table 3.—Lengths of growing seasons and frost dates at Weather Bureau stations in Idaho

Divisions	Station	Date of last killing frost in the spring	Date of first killing frost in the fall	Number of continuous frost free days
Northern division	Avery	June 4	Sept. 22	110
	Bonners Ferry	May 4	Sept. 19	138
	Bungalow	May 21	Sept. 29	131
	Coeur d'Alene	May 9	Oct. 4	148
	Cottonwood	June 2	Sept. 28	118
	Fenn	April 26	Oct. 13	172
	Grangeville	May 19	Sept. 25	128
	Kamiah	May 19	Sept. 23	126
	Kellogg	May 20	Sept. 24	126
	Kooskia	May 5	Oct. 3	151
	Lapwai	May 8	Oct. 1	146
	Lewiston	April 6	Oct. 24	199
	Moscow	May 7	Oct. 4	150
	Mullan Junction	May 31	Sept. 13	105
	Nezperce	May 25	Sept. 19	117
	Orofino	April 30	Oct. 11	166
	Pierce	June 20	Sept. 4	76
	Porthill	May 10	Sept. 28	141
	Potlatch	June 5	Sept. 10	97
	Prichard	May 27	Sept. 9	105
	Priest River	June 6	Sept. 12	98
	Roland	June 1	Sept. 8	100
	St. Maries	May 10	Sept. 22	135
	Salmon	May 21	Sept. 10	112
	Sandpoint	May 21	Sept. 17	119
	Wallace	May 9	Oct. 2	146
Southwestern division	Arrowrock Dam	May 5	Oct. 8	156
	Bliss	June 3	Sept. 21	110
	Boise	April 26	Oct. 13	173
	Buhl	May 10	Oct. 4	147
	Caldwell	May 7	Oct. 3	149
	Cambridge	May 18	Sept. 25	130
	Challis	May 28	Sept. 17	112
	Council	May 6	Oct. 1	148
	Deer Flat	May 4	Oct. 1	150
	Emmett	April 24	Oct. 10	172
	Garden Valley	May 31	Sept. 15	107
	Glenns Ferry	May 6	Oct. 3	150
	Gooding	May 21	Sept. 20	122
	Grand View	April 28	Sept. 19	144
	Grimes Pass	May 16	Sept. 19	126
	Hailey	June 3	Sept. 17	106
	Hazelton	May 15	Sept. 20	128
	Hill City	June 15	August 31	77
	Hollister	May 21	Sept. 23	125
	Idaho City	June 17	Sept. 2	77
	Jerome	May 3	Oct. 4	154
	Kuna	May 10	Sept. 30	143
	Lowman	June 26	August 30	65
	McCall	June 20	Sept. 2	74
	Meridian	May 2	Sept. 30	157
	Milner Dam	May 13	Sept. 28	138
	Mountain Home	May 16	Sept. 16	123
	New Meadows	June 27	August 28	62

Table 3. (Continued)

	Ola	May 28	Sept. 20	115
	Parma	May 2	Sept. 26	147
	Payette	May 7	Sept. 27	143
	Pine	June 5	Sept. 5	92
	Prairie	June 10	Sept. 12	94
	Pyle Creek	June 8	Sept. 2	80
	Richfield	June 6	Sept. 13	99
	Sheep Hill	May 28	Sept. 19	114
	Shoshone	May 22	Sept. 19	120
	Soldier Creek	June 23	Sept. 9	78
	Twin Falls	May 17	Sept. 26	132
	Weiser	May 4	Oct. 5	154
Southeastern division	Aberdeen	June 2	Sept. 9	99
	Albion	May 31	Sept. 12	104
	American Falls	May 22	Sept. 16	117
	Arco	June 3	Sept. 8	97
	Ashton	June 5	Sept. 10	97
	Blackfoot	May 18	Sept. 14	119
	Blackfoot Dam	June 22	August 24	63
	Burley	May 14	Sept. 22	131
	Driggs	June 15	August 31	77
	Dubois	May 20	Sept. 20	123
	Fort Hall	May 23	Sept. 17	117
	Grace	May 27	Sept. 14	110
	Gray Lake	June 29	August 29	61
	Idaho Falls	May 16	Sept. 20	127
	Irwin	June 20	Sept. 3	75
	Lifton	May 19	Sept. 21	125
	Mackay	May 31	Sept. 15	107
	Malad	May 27	Sept. 19	115
	Montpelier	June 9	Sept. 5	88
	Mud Lake	June 1	Sept. 3	94
	Oakley	May 17	Sept. 22	128
	Pocatello	April 28	Oct. 6	163
	Preston	May 27	Sept. 21	115
	Rupert	May 16	Sept. 20	127
	Spencer	June 5	Sept. 9	96
	Springfield	June 1	Sept. 13	104
	Sugar	May 30	Sept. 12	105

Table 4.—Vegetable Varieties Recommended for Idaho[1]

Asparagus:—Mary Washington (perennial).

Beans:—

Bush—

Green—Bountiful (45-50), Giant Stringless Green Pod (50-55), Tendergreen (50-55), Stringless Green Pod (50-55).

Wax—Pencil Pod Black Wax (50-55), Brittle Wax (50-55), Sure Crop Wax (50-55).

Lima—Henderson (Baby Lima) (65-70), Baby Fordhook (Baby Lima) (70-75), Fordhook (75-80), Burpee's Improved (75-80).

Pole—

Green—Kentucky Wonder (65-70).

Wax—Kentucky Wonder Wax (70).

Lima—Giant Podded (90-95), King of the Garden (85-90).

Beets:—Crosby's Egyptian (55-60), Detroit Dark Red (65-70).

Broccoli:—Italian Green Sprouting (100-105).

[1] Numbers in parentheses indicate length of growing season required.

Table 4. (Continued)

Brussels Sprouts:—Half Dwarf Improved (90-95).

Cabbage:—
Early—Early Jersey Wakefield (60-65), Copenhagen Market (65-70), Golden Acre (60-65).
Intermediate—Marion Market (70-75), Wisconsin Allseasons (90-95).
Late—Danish Ball Head (100-110), Flat Dutch (95-105), Wisconsin No. 8 (100-110).
Red—Rock Red (95-100), Red Dutch (100-110).

Carrots:—Nantes (65-70), Red Core Chantenay (storage) (70-75), Danvers Half Long (70-75), Imperator (75-80).

Cauliflower:—Super Snowball (65-70), Express (50-55).

Celery:—
Summer—Golden Self Blanching (110-120), Golden Plume (110-115).
Fall—Utah (125-130), Giant Pascal (135-140).

Chard:—Lucullus (50-55), Fordhook Giant (55-60).

Chinese Cabbage:—Chihli (70-75), Wong Bok (80-85).

Corn (sweet):—
Yellow—
Early—Golden Early Market (65-70), Carmel Cross (70-75), Golden Bantam (75-80).
Intermediate—Golden Cross Bantam (80-85).
Late—Golden Colonel (90-95), Golden Evergreen (95-100).
White—
Early—Early Surprise (70-75), White Early Market (70-75).
Intermediate—Howling Mob (85), Whipple's Early White (85-90).
Late—Stowell's Evergreen (95-100), Country Gentleman (90-95).

Cucumbers:—
Pickling—National Pickling (55-60), Chicago Pickling (55-60).
Slicing—Straight 8 (60-65).

Eggplant:—Black Beauty (105-110).

Endive:—Broad Leaved Batavian (85-90), Green Curled (85-90).

Kale or Borecole:—Dwarf Green Curled (50-55).

Kohlrabi:—White Vienna (55-60), Purple Vienna (60-65).

Lettuce:—
Leaf—Grand Rapids (40-45), Black Seeded Simpson (40-45).
Butter Headed—Big Boston (75-80), California Cream Butter (75-80).
Cabbage Headed—Imperial 152 (80-85), New York 199 (80-85), Imperial 847 (75-80), Imperial 615 (85-90).
Cos or Romaine—White Paris (60-65).

Muskmelon:—
Green Fleshed—Rocky Ford or Netted Gem (90-95).
Salmon Fleshed—Honey Rock (90-95), Hearts of Gold (90-95), Chipman's Champlain (75-80).

Onions:—
Seed—Yellow Sweet Spanish (115-120), White Sweet Spanish (115-120), Ebenezer (yellow) (110-115), White Portugal (100-105), Early Grano (yellow) (85-90).
Plants—Yellow Sweet Spanish (95-100), White Sweet Spanish (95-100), Bermuda (100-105).
Sets—Ebenezer (85-90), White Globe (85-90).

Parsley:—Moss Curled.

Parsnip:—Hollow Crown.

Table 4. (Continced)

Peas:—
Early—Alaska (55-60).
Intermediate—Laxton's Progress (60-65), Hundredfold (60-65).
Late—Alderman (70-75), No. 40 (75-80).

Peppers:—(Dates from setting of plants to harvest).
Sweet—Harris Earliest (55-60), California Wonder (70-75).
Hot—Red Chili (80-85), Long Red Cayenne (70-75).
Pimiento—Perfection (70-75).

Potatoes:—
Early—Irish Cobbler (95-100), Bliss Triumph (90-95), Katahdin (northern) (100-105).
Late—Netted Gem (Idaho Russet, Russet Burbank) (100-110).

Pumpkins:—
Bush (summer squash)—Summer Crookneck (50-55), White Bush Scallop (50-55).
Vining (acorn squash)—Table Queen (75-80).
Vining—Early Sugar or Pie (60-65), King of the Mammoths (show pumpkins) (120-125).

Radish:—Early Scarlet Globe (20-25), White Icicle (30-35).

Rhubarb:—(perennial)—MacDonald, Victoria.

Salsify:—Mammoth Sandwich Island (95-100).

Spinach:—
Spring planted—Bloomsdale Long Standing (45-50), Nobel (45-50).
Fall—Virginia Savoy, Old Dominion (50-55).
Overwintering—King of Denmark and Old Dominion.

Squash:—Hubbard (105-110), Delicious (100-105), Buttercup (85-90).

Tomato:—(date from setting plants till first harvest).
Red Early—Farthest North (55-60), Able (60-65), Bison (65-70).
Red Intermediate—Break o' Day (75-80), Bonny Best (75-80), John Bear (75-80).
Red Late—Greater Baltimore (80-85), Marglobe (80-85), Pritchard (80-85).

Turnip:—Purple Top White Globe (55-60).

Rutabaga:—American Purple Top (85-90).

Watermelon:—Cole's Early (75-80), Tom Watson (90-95), Striped Klondike (90-95), Favorite Honey (yellow fleshed) (70-75), Early Canada (75-80).

In Table 3 the length of the growing season for an area can be found. Varieties which require a longer growing season than is given in the table should not be grown except on a small scale.

Hardy crops have from 60 to 90 days more growing season than is given in the table, half hardy crops have from 30 to 60 days longer, and tender crops have only a possible 10 to 20 days longer season, while very tender crops have a slightly shorter growing season than is given in the table.

The varieties of vegetables shown in Table 4 are those that have been grown commercially in many sections of the State and have been proved to be good home garden varieties. The numbers following the variety names are the numbers of days from planting to maturity of the crop.

Preparing the Seedbed

Plowing or Spading

An important element in the success of the garden is adequate preparation of the soil. The land should be plowed or spaded to a depth of at least 6 to 8 inches. Without proper plowing or spading, poor germination will result and an unhealthy condition will be apparent in the garden throughout the summer. Many of the root crops such as carrots, beets, parsnips, etc., will be badly misshapen unless the ground is properly prepared. Care should be taken to cover over all manure and cover crop, especially if it is not well rotted and fine. Plowing should be done in the fall or as early as possible in the spring. Where sod is to be turned under, fall plowing definitely should be practiced.

Harrowing or Raking

Harrowing or raking should be done immediately after plowing to render the surface 3 inches of soil loose and friable. No amount of cultivation will make up for poor harrowing or raking. The ground of the seed-bed for small seeds should be prepared much finer than that for large seeds.

Cultivation

The most important and probably the only justifiable reason for cultivation is for control of weeds. Weeds in the garden will cause large reductions in yields and quality due to the fact that they rob the crops of both moisture and nutrients.

Minor effects that occur as a result of adequate cultivation are: (1) Aeration of the soil resulting in more favorable bacterial action in the soil; and (2) Increased heat retention.

Home gardening requires considerable hand hoeing and hand weeding to keep weeds down between the plants in the row. If cultivation with hand, team, or tractor tools is properly done, hand weeding is reduced to a minimum. However, regardless of the efficiency of these tools, some hand weeding is desirable, especially with small, closely spaced row crops such as lettuce, onions, beets, carrots, etc.

Cultivation should always be shallow to prevent injury to the roots of the growing crops, and should be done when the weeds are very small and easily killed, long before they compete seriously with the crops for moisture and nutrients. This means that the cultivation should be done as soon as practical after each irrigation or rain. If the cultivation keeps the weeds under control, it is sufficient for other purposes.

Irrigation

Irrigation usually is essential to the best production of vegetables even in the most humid sections of Idaho. There is considerable evidence that some crops require much more water than others, and it is known that many soils hold water longer than others; therefore, no general irrigation recommendation can be made. However, as a practical recommendation it may be said that most crops grow-

ing on a sandy loam soil will thrive on light irrigations once a week during the warmer part of the season. Rains of less than 0.20 inch should be supplemented in the regular schedule with irrigation. Rains heavier than 0.20 inch will replace or partially replace the irrigation, delaying the application. Heavy clay soils may require water only once every 10 days or 2 weeks and extremely sandy soils may require water every 4 or 5 days.

Irrigation by flooding should not be practiced in the garden. Either the furrow method, subirrigation, or spray irrigation should be used. Spray irrigation is the most expensive type, but can be used on uneven land without washing or puddling, and with less water. Subirrigation is quite expensive and is unsuited to most sections of the State. The furrow method is the most common type of irrigation and is undoubtedly the most practical.

Plant Growing

In many sections of Idaho it is necessary to start plants in some forcing structure to increase the length of the growing season. By starting plants inside before they can be planted outside, it is possible to grow long season, tender crops such as tomatoes, peppers, eggplant, melons, cucumbers, corn, and even lima beans in high altitude areas. Earlier harvests can be obtained by starting plants under cover before they are transplanted outside. Hotbeds and coldframes serve as useful structures for this purpose. They not only serve for starting young plants, but can be used to grow such crops as lettuce and radishes to maturity.

Hardening

Hardening is a process of checking the growth of plants to make them more resistant to adverse weather conditions and more able to stand the injury incident to transplanting. Checking the growth of plants may be accomplished by (1) exposing them to moderately low temperatures for a week or more; (2) by withholding water, allowing the soil to dry out; or (3) by a combination of the above two methods. Plants started in hotbeds or coldframes can be hardened gradually by removing the sash for increasingly long periods from day to day, and finally leaving the sash off entirely both day and night.

Most cool season plants can be hardened to withstand considerable frost, but it is not possible to harden warm season plants to this extent. However, it is desirable to harden warm season transplanted plants sufficiently to withstand wind, hot dry weather, and other unfavorable conditions that might follow setting the plants into the field.

Storage of Vegetables

Most vegetables can either be stored without processing or preserved for winter use by canning, freezing, or drying. By the use of one or more of the above four methods for storing, it is possible to have vegetables from the garden during the entire year.

Table 5.—Storage requirements for some common vegetables

Vegetable	Temperature	Moisture	Ventilation	Remarks
Beets	33°-35°	Medium	Little	Pack in moist sand
Brussels Sprouts	33°-35°	Medium	Medium	Pull whole plant and pack into the cellar
Cabbage	33°-35°	Medium	Medium	Same as brussels sprouts
Carrot	33°-35°	Medium	Little	Pack in moist sand
Celery	33°-35°	Wet	Much	Dig and replant on cellar floor, strip off outside leaves
Lettuce and Endive	33°-35°	Medium	Medium	Replant on cellar floor
Onion	33°-35°	Dry	Medium	Dry before storing
Parsnip	33°-35°	Medium	Little	Pack in moist sand Best left in garden
Pepper	45°-50°	Medium	Little	Pull plant and hang up
Potato	38°-40°	Medium	Medium	Store in bins
Turnip & Rutabaga	33°-35°	Medium	Little	Pack in moist sand
Salsify	33°-35°	Medium	Little	Pack in sand
Squash	45°-50°	Dry	Medium	Attic room makes an excellent place
Sweet Potato	50°-55°	Dry	Medium	Same as for squash
Tomato	55°60°	Medium	Little	Pull plant and hang up
Rhubarb	Dig roots in the fall and allow root to freeze. Place in furnace room (temp. 50°-60°). Fresh rhubarb in 3 weeks.			

Successful storage by any method demands high quality produce, free from disease and injury. The product should not be overripe, soft, or mushy since it would deteriorate rapidly regardless of the type of storage. Any treatment that will slow down or stop enzyme action is a method of storage. Enzyme action promotes normal ripening processes and unless checked causes the final breakdown of the product.

Specifications for successful storage of vegetables in the fresh state are given in Table 5.

Vegetables especially adapted to canning are asparagus, spinach, string beans, peas, corn, chard, cabbage (kraut), rhubarb, tomatoes, and lima beans. Those especially adapted to preservation by freezing include peas, green beans, lima beans (baby green), sweet corn, asparagus, spinach, cauliflower, and broccoli.*

* For directions regarding freezing preservation of vegetables see Idaho Agricultural Experiment Station Circular No. 64.

Cultural Hints for Some Common Home Garden Crops*

Asparagus

Asparagus is a perennial crop and should be located where it will not interfere with general tillage operations. Healthy one-year-old crowns, either home grown or purchased, should be planted from 6 to 8 inches deep as early as possible in the spring. No spears should be harvested the first year and very few spears should be cut before the third year. After this time, for a 10 to 12 week period, a fifty-foot row will daily produce sufficient asparagus for a family of five. After the cutting period the tops should be allowed to develop and grow for the entire summer. It is desirable to let the tops stand until dead. They should then be mowed and burned. Burning the tops destroys organic matter and to compensate for this loss, the plants should be manured each year.

Green and Wax Beans

The average per acre yield of beans grown in Idaho is more than double that of the other five leading bean producing states. Beans are one of the most important staple food crops in the garden, and successive plantings should be made for canning. Green beans contain more vitamins than wax beans.

All varieties are extremely sensitive to frost and should not be planted until after the ground has warmed in the spring. They grow best on deep, well-drained sandy loam soils; however, beans are grown on practically every type of soil in the State. Three or 4 pickings will harvest most of the crop from bush varieties, but the picking of pole varieties will extend over a long period.

Beets

Beets are one of the most popular root crop vegetables grown in almost every home garden. Beet greens also are very popular and are as healthful as any other greens crop. The roots are grown mainly for pickling purposes.

The garden beet usually has better color and quality if grown in a cool season. It is a half hardy plant and should be planted as soon as possible after the last ground-freeze. Since the fruit contains more than one seed, it is necessary to thin the beets to one plant. If the crop is to be used for pickling, the thinning is unnecessary. Successive planting should be made to insure a longer fresh beet season.

In areas with a long growing season, plantings should be made in the fall 2 weeks prior to the first killing frost. By the time the ground freezes, the beets will be in excellent condition for storing. In high altitudes late spring plantings may be allowed to grow all summer and then be harvested and stored.

To obtain highest quality, beets should be grown in a well-prepared, rich, sandy loam soil. The ground should be manured and fertilized, and irrigation should be supplied regularly to insure a continuous, rapid growth of the roots.

* For information on seed requirements, distances and depths of planting, etc., see Table 2.

Broccoli

There is much justification for the increasing popularity of Italian green sprouting broccoli since it is a very excellent source of many mineral elements and a good source of most of the common vitamins. The plant forms a green head that resembles cauliflower except for color.

Heads do not develop during hot weather; therefore, in warmer regions the crop should be planted in July and harvested in the fall. The plants produce side shoots so that one planting in the cool sections will supply continuous produce throughout the growing season.

The seed can be drilled in all sections except those with a very short growing season. In these regions plants should be grown, hardened, and then transplanted 18 to 24 inches apart in the rows and in rows 32 to 42 inches apart. Heads should be harvested while compact, before any spreading of the buds is noticed.

Brussels Sprouts

The edible portions of brussels sprouts are small buds which are produced in the axils of the leave of an unbranched stem. In Idaho they are usually grown as a fall crop. The seeds are drilled late in June and the plants are thinned to 18 to 24 inches in the row. After the first cool weather in the fall the basal sprouts begin to mature. The sprouts are harvested when the outer leaves begin to show a yellow color. The harvest extends over a long period and when freezing weather sets in the plants can be pulled and placed in storage. Buds can then be harvested throughout the winter. In high altitudes, plants should be grown, hardened, and transplanted outside as early as possible. The cool weather in high altitudes is conducive to the formation of solid heads.

Cabbage

Cabbage is one of the most important vegetable crops grown in the United States. It is grown by market gardeners, special growers, general farmers, and home gardeners.

Early Cabbage.—For extra early produce, cabbage plants are grown in the hotbed and transplanted to the field as soon as possible after the danger of ground freezes has passed. The plants should be hardened by withholding water and gradually exposing them to lower temperatures for a period of 10 days before planting. In the very highest altitudes, only early varieties handled in this manner can be grown. Medium early cabbage can be grown by drilling the seed directly into the gardens and thinning the plants to the desired distance.

Late Cabbage.—Late cabbage may be grown from transplants or from seed drilled into the garden and the plants thinned. In sections where there are 125 150 or more continuous frost-free growing days, the seeds should not be planted before June 15. In some localities it is necessary to harvest the heads as soon as they are firm because of their bursting if allowed to remain growing.

Only the Danish types of cabbage should be grown for storage purposes.

Carrots

Carrots are an excellent garden crop because they are easy to raise, and they can be grown in the very shortest of growing seasons. Carrot seed germinates very slowly, and the seedlings are delicate at first. Radishes may be sown with carrots to mark the row and facilitate earlier cultivation. The radishes will protect the young carrots and will be harvested before they delay them by competition.

The carrot, like the beet, requires a deep, well-drained soil. In heavy soils the plants should be thinned to 2-4 inches, but in light soils no thinning is necessary. The quality of the carrot is best when the roots are about ¾ inch in diameter. For summer use, succession plantings should be made. Carrots for storage should be 1-1½ inches in diameter.

Cauliflower

Cauliflower may be grown either as a spring or fall crop in the valley sections, or as a summer crop in the higher altitudes and northern sections of the State. Grown as a spring crop the seed should be started inside 6 to 8 weeks before setting the plants into the garden. The plants may be planted outside 4 to 6 weeks before the last killing frost in the spring. As a fall crop the seeds are usually planted about June 15 and the plants are transplanted into the garden 6 weeks later. As a summer crop in high altitudes, the plants should be handled the same as the spring planting in valley areas.

Cauliflower is a difficult crop to grow. Planting dates are very exacting and high quality demands considerable care. Good seed is very expensive but absolutely essential. The weather during curd formation will make or break the quality. If the curding occurs in too hot weather, nothing can be done to save the crop. However, if the weather is cool, the quality will be excellent. It is necessary to control aphids, cabbage maggot, and cabbage worms to obtain high quality.

Plants are usually grown and transplanted because of more economical utilization of seed. The crop can be grown on any good soil when other conditions are favorable. Deep cultivation should be avoided. It is necessary to blanch the head by tying the leaves up over the curd when it is about the size of a walnut. The head will be ready to harvest from 5 to 10 days after tying.

Celery

Excellent quality celery can be grown in most sections of Idaho. In the valley areas the quality of the garden grown celery will compare favorably with the best that can be purchased.

Celery does best upon a well-drained, sandy loam soil that is well-supplied with organic matter. It requires a constant liberal supply of moisture. The seed is seldom sown where the crop is to be grown to maturity because it is small, germinates slowly, and

forms very delicate plants. In high altitude areas the plants are usually transplanted to the field 1-2 weeks before the last killing frost in the spring. The seed is sown inside or in hotbeds 8 to 10 weeks before transplanting. In valley sections the plants are transplanted outside about 90 days previous to the first killing frost in the fall. The plants should be ¼ inch in diameter and 1½ to 2 inches tall at the time of transplanting. The plants should be transplanted upon the side of an irrigation furrow and should not be hardened before transplanting.

Swiss Chard

Chard is an excellent vegetable to grow for greens mainly because it is easy to grow. It may be drilled outside as soon as ground freezes are over in the spring and thinned to 6 to 8 inches. A small planting will furnish greens until early summer. Practically any garden soil is satisfactory for chard. It is harvested by cutting off the outer leaves just above the ground line. Leaves should be continually used to obtain best results.

Chinese Cabbage

Chinese cabbage can be grown easily and successfully as a summer crop in the cooler sections of the State and as a fall crop in the valley sections. It can be used for salads in the same manner as head lettuce or celery. It is possible to mature the crop with quality before hot weather comes in the spring. The seed is drilled thinly 70 days before the first killing frost in the fall, and the plants are thinned to the desired distances. Chinese cabbage can be grown on practically any Idaho soil, although a sandy loam is preferred. The heads are harvested for storage by pulling the plants, roots and all. The plants are then replanted upon the cellar floor.

Cucumber

The cucumber is grown for pickling and for slicing purposes. It is a warm season crop and cannot be hardened to withstand frosty temperatures. However, it can be grown in practically all sections of the State because of its short growing season. Cucumbers are grown on practically every soil type in Idaho, but where earliness is desired, a sandy or sandy loam is preferred. The seed should not be planted until all danger of frost has passed. Hand hoeing is necessary to keep weeds down after cultivation has been discontinued. Cucumbers are picked when small for pickling purposes, and allowed to grow for slicers. Frequent picking is essential because if fruits are allowed to ripen, the yields are greatly reduced. Picking every 2 or 3 days is recommended.

Eggplant

The eggplant is a tropical crop that demands high temperatures and a long growing season. In some sections of the State the plant is a prized home garden type. The culture of the eggplant is practically the same as for tomato except that it requires a longer growing season and is very tender. It must be grown from transplants and to grow the crop successfully plants must not be checked

in growth. The use of individual plant containers is recommended to prevent a check in growth by transplanting. The fruit is usually harvested when well-colored but in an immature condition.

Endive

Endive rapidly is becoming a more popular vegetable in Idaho. It is grown in the same manner as lettuce, but the plants are slower growing. In the valleys the seed is planted about 75 to 80 days before the first killing frost in the fall, and the plants are thinned to the desired distance. When the plants have reached a diameter of 14 to 16 inches, the hearts are blanched, preferably by tying up the leaves. Cool, dry weather is required for successful blanching. In cooler areas of the State the crop can be matured in the summer. When the center leaves are well blanched, the plants are harvested the same as lettuce.

Horse-radish

Horse-radish is a perennial which may be grown in home gardens in all areas of the State. The crop is grown for the fleshy roots which are ground, preserved in vinegar and used as a condiment. Deep sandy soils are essential to the production of high quality roots. Although the main enlargements of the roots occur in the fall, the original plantings should be made as early as possible in the spring. Weeds should be kept down throughout the growing season. The roots may be dug in the late fall, and in the home garden some roots should be left to produce the following year's crop. Horse-radish raised commercially should be treated as an annual.

Lettuce

Lettuce is the most popular of salad crops grown in the home garden. Leaf, cos, and head lettuce can be grown in practically all parts of the State. In the valley sections the lettuce can be grown as a spring or fall crop, and in the cooler sections it can be grown as a continuous summer crop. As a spring crop it should be planted as early as possible, or it may be planted in the late fall and allowed to overwinter in the ground. The lettuces, especially heading types, must mature in cool weather and if hot periods occur, the lettuce may be ruined. As a fall crop the lettuce is planted from 50 to 60 days previous to the first killing frost in the fall. Fall plantings made at this time usually mature during cool weather and are more satisfactory than spring plantings. Lettuce can be grown on practically all Idaho soils, but demands fertility and thorough preparation of the ground. In Idaho the crop is universally drilled and then blocked and thinned to single plants at the desired distances. Much of the success of production depends upon proper irrigation. On poorly drained soils the planting should be done on raised beds. On sandy loam soils the crop is usually irrigated every 10 days. Lettuce is harvested over a period of only 2 to 3 weeks, and in the cooler sections of the State successive plantings should be made to insure fresh lettuce all during the growing season.

Muskmelon

The muskmelon is a warm season plant and is an excellent garden type, although it is rather difficult to grow and requires considerable space. A well-drained sandy loam soil is best for its culture. High temperatures and dry weather during the ripening season are conducive to excellent quality fruit. Plantings may be drilled in a row, or seeded by hand in hills; either method is satisfactory. The developing fruits must rest on dry soil away from the corrugations. Cultivation is handled the same as for cucumbers. In sections with short frost-free growing seasons transplants should be used. Vigorous plants can be obtained by starting seeds in a container such as a veneer band, berry box, or a large pot. For satisfactory results in transplanting, the soil around the roots must not be disturbed. For home use the melons should be harvested when the fruit will easily separate from the stem. The quality of vine-ripened melons is far superior to storage-ripened fruit. The melons should be picked in the morning before the fruit has warmed in the sun.

Onion

Onions can be produced in most home gardens in the State. In the valley regions of Idaho the onion is grown commercially as a farm crop. In these regions onions can be grown from seed, planted as early as possible in the spring. In high altitudes they must be grown from sets or transplants to grow mature bulbs. Onions require considerable hand weeding and cultivation. They grow best on sandy soils. If the bulbs ripen properly, the leaves weaken in the region just above the bulb and the top falls over while still green. At this time they should be pulled and stored.

Parsnip

The culture of the parsnip is similar to that of the carrot. A deep rich soil is essential to high quality. The seed germinates very slowly, and the young plants are delicate until they become established. The roots are not injured by light freezes; in fact, the quality is improved by temperatures just above freezing. The improved quality is due to an increase in sugar and a decrease of starch. Most popular storage is in the ground, where the roots are left growing. Unless there is considerable snow, the roots may be harvested any time during the winter or following spring.

Peas

Peas are one of the garden crops that can be grown even in the highest altitudes. They are an excellent spring crop in the valleys and a summer crop in the higher regions. Peas are a cool season crop and in the valley regions the seed must be planted as early as possible to mature the crop in cool weather. If the crop matures in hot weather the quality of the peas is poor and the yield is low. Peas must be grown on well-drained soils. Early yields are on sandy loam soils, but heaviest yields are on clay loams. Little cultivation is necessary since peas usually are grown during cool weather and

crowd out weeds to a certain extent. Late planted peas, however, are very hard to keep weeded. Peas should be picked when the pods are filled with young, tender peas. A slight delay in harvesting may result in poor quality.

Peppers

Sweet peppers used as a salad and mildly pungent peppers used for seasoning in canning are excellent crops for the home garden. Peppers are slightly more tender than tomatoes and should be planted a week to 10 days later. They are, however, more easily grown than tomatoes. Transplants are generally used, but in the warmer sections of the State seed may be drilled directly into the garden and the plants thinned. Peppers for salad are of highest quality when in a green mature condition; however, they are palatable until the red mature stage is reached.

Potato

Idaho is famous for its high quality potatoes grown mainly in the upper valley sections, but high quality potatoes can be grown in all except the highest altitude regions. Potatoes are one of the most profitable home garden crops. They may be grown for an early summer or fall crop in warmer areas, and as a fall or storage crop in the cooler sections. Cool weather is most favorable to tuber and plant growth. Practically any well-drained soil type in Idaho will produce potatoes. Irrigation should be frequent and light, and cultivation should follow each irrigation. Hilling should be practiced for weed control and to reduce greening. Planting in high altitudes should be done after ground freezes are over. In general, the main fall crop should be planted approximately 4 months before the first killing frost in the fall in the valley sections. Early potatoes should be planted 4 or 6 weeks before the last killing frost in the spring.

Radish

The radish is the quickest and easiest crop to grow in the home garden. It requires cool weather for best development and will tolerate considerable frost. Where the summers are cool radishes can be grown throughout the summer. Harvesting begins as soon as the roots reach edible size, and one planting will produce fresh radishes for about 2 weeks. Two-week succession plantings over a two-month period in the spring and a month period in the fall will furnish fresh radishes for 3 months of the year even in the warmest parts of the State.

Rhubarb

Rhubarb is one of the most popular early spring vegetables. It is a perennial crop that can be grown in any section of Idaho. Four or five roots will satisfy the needs of a family of five. Rhubarb is propagated by division of old plants. In starting a planting the roots should be set out as early as possible in the spring. The first year no leaves should be taken, but the second season a small crop may be harvested. After 10 years the planting becomes overcrowded

and a new patch should be established. By placing a bottomless keg over a plant and filling it with horse manure the rhubarb may be forced so that it can be used a week to 10 days earlier in the spring.

Salsify

Salsify, or vegetable oyster, is grown for the long fleshy tap root, which has a mild flavor similar to oyster. Salsify demands a long growing season; however, being very hardy it can be grown in the highest altitudes. The cultural requirements are practically the same as for parsnip. Unless deep loose soils are used, unsatisfactory results will be obtained. Storage is similar to that recommended for parsnips.

Spinach

Spinach is very valuable in the diet and is very easy to grow. It may be grown as a spring or fall crop in the valley sections, and as a summer crop in the higher parts of the State. It grows best during cool weather and is very hardy. For earliest harvest it may be seeded in the fall; however, early crops may be obtained by spring planting. Spinach grows best on well-drained sandy loam soils, but can be grown on any soil type. The seed should be planted thinly in order that the plants may spread out. It is important to control weeds to obtain high quality. Harvesting of the largest plants every 2 or 3 days will allow cutting for 2 weeks or more. Succession plantings should be made.

Squash and Pumpkin

Squash and pumpkins require considerable space and should be grown elsewhere on the farm if garden space is limited. Squash bugs and the beet leafhopper limit the production of squash and pumpkins in many of the warmer sections of the State. However, these crops can be grown easily in higher altitudes. They do not require as long a frost-free growing season as muskmelons or watermelons, although they are just as frost tender. Squash and pumpkins can be satisfactorily grown as companion crops to corn.

Sweet Corn

Excellent sweet corn can be grown in gardens throughout most of the State. The corn grows best during hot weather; however, for best quality the corn should mature during cool weather. During cool weather the corn will remain in good edible condition for 2 or 3 days, but in hot weather only a few hours pass before the corn grows through the best quality stage. A succession of corn may be obtained either by planting varieties which ripen at different times or by planting one variety at intervals. The young plants are injured by frost, but in higher altitudes considerable risk must be taken to mature the crop.

Although hybrid sweet corns of higher quality than any of the open pollinated varieties have been on the market for more than ten years, home gardeners have failed to take advantage of them.

Tomato

The tomato is a warm season crop and requires a long frost-free growing season which necessitates growing the crop from transplants in most parts of Idaho. Tomatoes can be hardened to withstand light frosts, but they will not withstand freezing. The plants are planted a little later than the time of the last killing frost in the spring. It requires from 8 to 10 weeks to grow the plants from seed. In areas with long growing seasons, the seeds may be planted into the garden and thinned to proper distances. Most tomato crop failures in Idaho are due to the disease known as curly top, which is transmitted by the beet leafhopper. Many gardeners have learned to discourage the leafhopper by shading the plants with 10 x 12 paper boxes which have the tops and bottoms cut away. Cultivation should be frequent enough to control weeds. Irrigations should be light and frequent. Staking is a necessary practice with many gardeners in high altitude sections; however, some of the newer short season varieties will not respond to staking. In long season areas no advantage can be gained by staking.

Turnip

The turnip is a cool season crop which is grown for the fleshy root. Turnips may be grown for a spring or fall crop in most sections of the State. The cultural practices suggested for beets will be satisfactory for turnips. The seeds germinate quickly and plants mature rapidly. Seeds may be planted as early as possible in the spring and from 4 to 6 weeks before the first killing frost in the fall. Either white or yellow fleshed varieties may be grown.

Watermelon

Watermelons are very tender plants and require a long growing season. They require too much space to be grown in a small garden; however, they are a popular crop. The culture of watermelons is practically the same as for muskmelons. The ripeness of a watermelon cannot be determined by the size or color of the fruit. Experienced growers can tell by the quality of the sound when thumping a melon whether or not it is ripe. It is suggested that inexperienced growers apply 10 to 15 pounds pressure on the melon in the morning before the fruit warms, and if a cracking sound results the melon is probably ripe. Since the temperature of the fruit affects the amount of cracking, this method is not entirely satisfactory. Too much pressure will result in bruising green fruits.

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